Remarks

SUMMARY

Claims 11-17, 19-24, 26, 27, 29-31 and 34-37 are rejected and remain pending. Claims 11, 12, 14-17, 19-21, 23, 24, 26, 27, 30, and 31 are amended. Claims 13, 22, and 29 are hereby canceled. Claim 38 is added. No new matter is added. Support for amendments to claim 11 can be found throughout the specification and figures such as for example in paragraph 28. Support for amendments to claim 17 can be found throughout the specification and figures such as for example paragraph 40. Support for new claim 38 can be found for example in paragraphs 29-33. Reconsideration is respectfully requested.

Claim Rejections under 35 U.S.C. § 101

The Office rejected claims 11-16 and 21-23 under § 101 for claiming subject matter that does not produce a useful, concrete, and tangible result. Applicants note that a recent Federal Circuit decision, *in re Bilski*, held that the "machine or transformation test" is the sole test to determine whether a process claim is patent-eligible.[1] Under that test, the process claim must either be tied to a particular machine or transform an article to a different state or thing. Applicants submit that process claims 11-16 are at least tied to a particular machine and are therefore patent-eligible under the machine or transformation test.

As to claims 21 and 23, Applicants note that that these claims recite an apparatus, do not fall into one of the three judicial exceptions – Laws of Nature, Natural Phenomena, or Abstract Ideas – and that they recite apparatuses having utility. In particular, the apparatus is capable of determining whether a platform's workload resembles a reference workload and, if so, reconfiguring it to optimize performance. One skilled in the art would recognize that this imparts real-world utility in the form of more efficient use of computing resources. Applicants therefore submit that these claims are also patent-eligible under § 101.

Claim 22 is canceled rendering its rejection moot.

[1] See http://www.uspto.gov/web/offices/pac/dapp/opla/documents/bilski_guidance_memo.pdf

Claim Rejections under 35 U.S.C. § 102

The Office rejects claims 17, 19-20, 24, 26, 31, 36, and 37 under 35 U.S.C. § 102(b) as being anticipated by *Reinemann*, U.S. Patent Publication No. 2003/0115118. Amended claim 17 recites a method comprising:

> generating, by a workload analyzer computing system, a lookup index based at least in part on an output of an index function configured to accept as input one or more measured performance values associated with one or more corresponding observed performance events resulting from a platform's execution of a workload;
>
> selecting, by the workload analyzer computing system, one of a one or more pre-established sets of configuration parameter values, based at least in part on the generated lookup index, for application to configure the platform, each of the pre-established sets of configuration parameter values being associated with corresponding reference workloads, and each of the pre-established sets of configuration parameter values having been previously determined to result in a lowest number of processor cycles per unit of work when used to configure a reference platform while executing the corresponding reference workloads; and
>
> configuring the platform according to the selected pre-established set of configuration parameter values.

Reinemann teaches monitoring resource utilization of a processor by collecting "performance status" metrics and archiving them in a log file. In addition to monitoring, Reinemann discloses a policy manager capable of applying resource-sharing policies based on the collected performance status metrics. Even though Reinemann does off-load CPU cycles onto another device in order to lower CPU utilization, there is no indication that the CPU load-sharing of Reinemann seeks to reconfigure the device using "pre-established sets of configuration parameter values having been previously determined to result in a lowest number of processor cycles per unit of work when used to configure a reference platform" as required by amended claim 17. For at least these reasons, Applicants submit that Reinemann fails to teach all elements of claim 17 and that claim 17 is accordingly patentable over Reinemann under § 102(e).

Amended claims 24 and 31 recite limitations generally similar to those of claim 17, and are thus patentable over Reinemann for at least the same reasons. Accordingly, Reinemann does not anticipate claims 24 and 31. Claims 18-20, 25-26,

36, and 37 each depend from one of claims 17 or 24. Accordingly – for at least the same reasons – Reinemann also fails to anticipate these claims.

Claim Rejections under 35 U.S.C. § 103

Claims 11-16, 21-23, 27, 29, 30, 34, and 35 stand rejected as being unpatentable under 35 U.S.C. § 103(a) over *Reinemann*, in view of *Chiu*, U.S. Patent Publication No. 2002/0186658. Claim 11 is exemplary and recites, in part:

> "correlating each of a plurality of observed performance values to each of a corresponding plurality of reference performance values of the reference workload to produce a correlation metric representing the degree of overall statistical correlation between the plurality of observed performance values and the plurality of reference performance values; and
>
> determining that the workload resembles the reference workload if the correlation metric exceeds a pre-determined threshold"

As noted above, Reinemann teaches both monitoring a "processor" (e.g. a computing device) and load-balancing if utilization is below a certain threshold. As part of the load-balancing, each process is given a negotiated threshold not to be exceeded. As described in Reinemann figure 4 and elsewhere, Reinemann periodically monitors each process's performance status and determines whether it has exceeded the negotiated limits in several performance categories such as CPU utilization, RAM utilization, chipset counters, and others. If it exceeds any one of the negotiated thresholds, the process is throttled back. In the rejection of now-canceled claim 13, the Office cited Reinmann paragraph 37 which describes also that the Reinemann processor may throttle back hosted processes if the processor's overall utilization in any performance category exceeds a threshold, regardless of whether the hosted process itself is exceeding its negotiated thresholds.

While it is true that Reinemann does teach monitoring the processor for a plurality of performance data values such as CPU and memory utilization, it never determines "a correlation metric representing a degree of overall statistical correlation between the plurality of observed performance values and the plurality of reference performance values", as required by claim 11. Rather, Reinemann considers each

performance category individually, and determines whether a threshold specific to that data point has been exceeded. Reinemann thus fails to teach at least this element of claim 11.

Chiu is cited for teaching determining whether a workload resembles a reference workload. Applicants do not agree with this assertion, but do not address it further. Applicants submit that Chiu neither teaches nor suggests the underlined portions of claim 11 above.

Furthermore, there would have been no motivation to modify Reinemann to achieve the underlined portions of claim 11. Reinemann's purpose is to determine whether individual resources on a processor exceed their negotiated threshold limits. It would not matter whether there was an overall correlation between each category's individual utilizations and their respective thresholds. If only one resource is being over-utilized, the hosted processes is throttled back. Determining "a correlation metric representing a degree of *overall statistical correlation* between the plurality of observed performance values and the plurality of reference performance values" would be an unhelpful and unnecessary step. Thus, there would be no motivation to modify Reinemann to determine an overall correlation metric as described in claim 11.

For at least these reasons, Applicant submits that the combination of Reinemann and Chiu neither teaches nor suggests all elements of claim 11 and that claim 11 is therefore nonobvious and patentable over the combination. Claims 12, 15, 16, 34, and 35 depend from claim 11 incorporating its limitations. Applicant submits that these claims are patentable for at least the same reasons.

Claims 21 and 27 recite generally similar subject matter as claim 11. Claim 23 depends from claim 21 and claim 30 depends from claim 27. Applicant submits that these claims are patentable for at least the same reasons.

Claims 13, 22, and 29 are canceled, rending their rejections moot.

New Claim

New claim 38 depends from claim 11 and Applicant submits that it is patentable for at least the same reasons as claim 11.

Response to Arguments

Applicants thank the Office for considering Applicants' previous remarks.

Conclusion

Applicants submit that all pending claims are in condition for allowance. Thus, a Notice of Allowance is earnestly solicited. Please contact the undersigned regarding any questions or concerns associated with the present matter. If any fees are due in connection with this paper, the Commissioner is authorized to charge Deposit Account 500393.

Respectfully submitted,

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